In the United States Court of Federal Claims

No. 99-93 C

(Filed: August 24, 2000)

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MASCO CORPORATION,

Plaintiff,

v.

THE UNITED STATES,

Defendant,

Claim construction;
step plus function claims;
electrical combination lock.

and

MAS-HAMILTON GROUP, MOSLER, INC., and HAMILTON PRODUCTS GROUP, INC.,

Third-Party Defendants.

* * * * * * * * * * * * * * * * * * * *

Paul M. Laurenza, Washington, DC, for Plaintiff. *Michael D. Harris* and *Guy Porter Smith*, Los Angeles, CA, of counsel.

John Fargo, Assistant Director, Commercial Litigation Branch, Civil Division, U.S. Department of Justice, Washington, DC, for Defendant, with whom were *Vito J. DiPietro*, Director, and *David W. Ogden*, Acting Assistant Attorney General. *Robert G. Hilton*, of counsel.

David E. Schmit, Cincinnati, OH, for Third-Party Defendant Mas-Hamilton Group.

J. Robert Chambers, Cincinnati, OH, for Third-Party Defendants Mosler, Inc., and Hamilton Products Group, Inc. *Theodore R. Remaklus*, Cincinnati, OH, and *Mitchell R. Berger* and *Michael J. Schaengold*, Washington, DC, of counsel.

OPINION AND ORDER

DAMICH, Judge.

Pursuant to 28 U.S.C. § 1498, Masco Corporation (the Plaintiff) has sued the United States (the Defendant) for infringement of two of its patents, United States Patent Nos. 5,540,068 and 5,778,711. These patents are for electronic combination locks. Both patents are continuations of United States Patent No. 5,307,656. The United States has brought in, as Third-Party Defendants, Mas-Hamilton Group, Mosler, Inc. and Hamilton Products Group, Inc. The Third-Party Defendants manufacture (Mas-Hamilton Group, Inc.) the accused device or incorporate the accused device and sell it to the United States (Mosler, Inc. and Hamilton Products Group, Inc.).

In this opinion, the Court construes the patent claims as a matter of law.

I. Background

The present case is related to an earlier lawsuit between Mas-Hamilton Group and LaGard, Inc., the corporate predecessor to the present Plaintiff, Masco. The earlier case, which was in the Eastern District of Kentucky, concerned the '656 patent. In *Mas-Hamilton Group v. LaGard*, 21 F. Supp.2d 700 (E.D. Ky. 1997) ("*Mas-Hamilton I*"), the court determined that the '656 patent was not invalid, and that the accused device, the X-07 lock, did not infringe the '656 patent either literally or under the doctrine of equivalents. The Federal Circuit affirmed this ruling. *Mas-Hamilton Group v. LaGard, Inc.*, 156 F.3d 1206, 48 USPQ2d 1010 (Fed. Cir. 1998) ("*Mas-Hamilton II*"). The two published decisions set forth many background facts.

The patents in suit, the '068 patent and the '711 patent, are continuations of the '656 patent. The background disclosures in all three patents are substantially identical, if not verbatim. Thus, court rulings with regard to the '656 patent are relevant to the '068 patent and the '711 patent.

The parties agree about the development of technology for electronic combination locks. The precursors to electronic combination locks were mechanical combination locks. In mechanical combination locks, rotating a dial moves a series of tumbler wheels with notches and a cam wheel. When the combination on the tumbler wheels matches a pre-set combination, the tumbler wheels are aligned and a fence can drop into the notches in the tumbler wheels. When the fence falls into the notches, a lever, which is attached to

the fence, moves toward the cam wheel. This lever is connected to a withdrawal bolt. The cam wheel has an indentation that joins with a protrusion on the lever. This connection between the lever and cam wheel permits the lever to pull the withdrawal bolt when the cam wheel is turned. '068 Patent, Col. 1, lines 40-46; *Mas-Hamilton I*, 21 F. Supp.2d at 710.

A deficiency with mechanical locks is that the locks make noise as they are turned. The fence and lever rest on the outside of the tumbler wheels and cam wheel as the dial turns. When the fence drops into the tumbler wheel, there is an audible click that is detectable. Thus, the security of the lock could be compromised. '068 Patent, Col. 1, lines 47-57; *Mas-Hamilton I*, 21 F. Supp.2d at 710.

Electronic locks overcome this problem because the fence does not touch the tumbler wheels and cam wheel until the correct combination is entered. When the correct combination is entered, a solenoid moves a detent that engages the cam wheel. As in the mechanical locks, additional turning of the dial causes the lock to open. '068 Patent, Col. 1, line 59 - Col. 2, line 4; *Mas-Hamilton II*, 156 F.3d at 1209, 48 USPQ2d at 1013; *Mas-Hamilton I*, 21 F. Supp.2d at 710.

The present litigation concerns the electronic locks disclosed in the '068 patent and the '711 patent. Ultimately, the Plaintiff claims that the X-07 device infringes those two patents. The issue of infringement, however, is being deferred until the issue of claim construction is decided.

II. Procedural Posture

Early in this case, the Court determined that it would hold a claim construction hearing separate from any hearing on infringement. The Court ordered legal briefing about the disputed claim limitations and also asked the parties to consider what extrinsic evidence would be useful. The parties agreed that witnesses were not necessary because the attorneys could present the background technology by referring to the prior art patents.

The claim construction hearing consisted of presentations and legal arguments by counsel. As a form of extrinsic evidence, dictionary definitions for some disputed terms were introduced.

Two broad categories summarize most of the disputed limitations. First is whether certain limitations are properly understood as "step plus function" limitations under Section 112, paragraph 6. Second is the specific meaning for certain limitations. There is also a third disputed term which does not fall within either category.

III. Standards for Claim Construction

Determination of claim construction, including the terms of art found therein, is a matter of law for the court to decide. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 34 USPQ2d 1321 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370, 116 S. Ct. 1385, 134 L. Ed. 2d 577, 38 USPQ2d 1461 (1996). The Federal Circuit has instructed that,

"when construing a claim, a court should look first to the intrinsic evidence, i.e., the claims themselves, the written description portion of the specification, and the prosecution history." *Bell & Howell Document Management Prods. Co. v. Altek Sys.*, 132 F.3d 701, 706, 45 USPQ2d 1033, 1037 (Fed. Cir. 1997).

"The starting point for any claim construction must be the claims themselves." *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165 (Fed. Cir. 1999). "[I]t is always necessary to review the specification to determine whether the inventor has used any terms in a manner inconsistent with their ordinary meaning." *Northern Telecom, Ltd. v. Samsung Electronics Co., Ltd.*, 215 F.3d, 1281, 1293, 55 USPQ2d 1065, 1073 (Fed. Cir. 2000), quoting *Vitronics Corp. v. Conceptronic, Inc*., 90 F.3d 1576, 1582, 39 USPQ2d 1573, 1577 (Fed. Cir. 1996). Further, "[t]he prosecution history is often helpful in understanding the intended meaning as well as the scope of technical terms, and to establish whether any aspect thereof was restricted for purposes of patentability." *Vivid Technologies, Inc. v. American Science & Engineering, Inc.*, 200 F.3d 795, 804, 53 USPQ2d 1289, 1295 (Fed. Cir. 1999).

After considering the intrinsic evidence, the court may also "consult trustworthy extrinsic evidence to ensure that the claim construction it is tending to from the patent file is not inconsistent with clearly expressed, plainly apposite, and widely held understandings in the pertinent technical field." *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1309, 51 USPQ2d 1161, 1168 (Fed. Cir. 1999).

Finally, whether a limitation falls within Section 112, paragraph 6 is a question of law. *Chiuminatta Concrete Concepts v. Cardinal Industries*, 145 F.3d 1303, 1308, 45 USPQ2d 1752, 1755 (Fed. Cir. 1998).

IV. Step plus Function

Section 112, paragraph 6, permits using "step plus function" language in a claim. This statute states:

> *An element in a claim for a combination may be expressed as a* means or *step for performing a specified function without the recital of* structure, material, or *acts in support thereof*, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. § 112, ¶ 6 (1994) (emphasis added).

The Federal Circuit has analyzed in detail whether a limitation was a "step plus function" limitation in only one case: *O.I Corp. v. Tekmar Co., Inc.*, 115 F.3d 1576, 1582, 42 USPQ2d 1777, 1781 (Fed. Cir. 1997). In examining Section 112, ¶ 6, the Federal Circuit states:

> The statute of course uses terms that might be viewed as having a similar meaning, namely, steps and acts. It refers to means and steps, which must be supported by structure, material, or acts. It does not state which goes with which. The word "means" clearly refers to the generic description of an apparatus element, and the implementation of such a concept is obviously by structure or material. We interpret the term "steps" to refer to the generic description of elements of a process, and the term "acts" to refer to the implementation of such steps. This interpretation is consistent with the established correlation between means and structure. In this paragraph, structure and material go with means, acts go with steps. Of course, as we have indicated, Section 112, ¶ 6, is implicated only when means plus function without definite structure are present, and that is similarly true with respect to steps, that the paragraph is implicated only when steps plus function without acts are present. The statute thus in effect provides that an element in a combination method or process claim may be recited as a step for performing a specified function without the recital of acts in support of the function.

O.I. Corp., 115 F.3d at 1582-83, 42 USPQ2d at 1781. The most important part of this long passage is "with respect to steps, that the paragraph is implicated only when steps plus function without acts are present." Thus, in deciding whether a particular limitation is a "step plus function" limitation, this Court will examine the patent to see whether any act is present. If an act is present, then the limitation is not a step plus function limitation.

Although the test is easily stated, one Federal Circuit judge has noted that applying this test to actual patents is much more challenging. "The difficulty of distinguishing acts from functions in step plus function claim elements, however, makes identifying step plus function claims inherently more problematic." *Seal-Flex, Inc. v. Athletic Track and Court Const.*, 172 F.3d 836, 848-49, 50 USPQ2d 1225, 1233 (Fed. Cir. 1999) (Rader, J., concurring). The limitations of the English language contribute to this difficulty:

> [C]laim elements without express step plus function language may nevertheless fall within § 112, ¶ 6 if they merely claim the underlying function without recitation of acts for performing that function. Unfortunately, method claim elements often recite phrases susceptible to interpretation as either a function or an act for performing a function. Both acts and functions are often stated using verbs ending in "ing."

Id., 172 F.3d at 849, 50 USPQ2d at 1234. In *Seal-Flex*, Judge Rader offered his views about how to determine whether a limitation was a step plus function limitation. Judge Rader states:

> In general terms, the "underlying function" of a method claim element corresponds to *what* that element ultimately accomplishes in relationship to what the other elements of the claim and the claim as a whole accomplish. "Acts," on the other hand, correspond to *how* the function is accomplished. Therefore, claim interpretation focuses on what the claim limitation accomplishes, i.e., [its] underlying function, in relation to what is accomplished by the other limitations and the claim as a whole. If a claim element recites only an underlying function without acts for performing it, then § 112, ¶ 6 applies even without express step plus function language.
>
> In sum, similar to means plus function claims, this Court employs a straightforward analysis for identifying a step plus function claim. If the claim element uses the phrase "step for," then § 112, ¶ 6 is presumed to apply. Because the phrasing "step for" would appear to claim every possible act for performing the recited function, in keeping with § 112, ¶ 6, such a claim covers only the specific acts recited in the specification for performing that function, and equivalent acts. On the other hand, the term "step" alone and the phrase "steps of" tend to show that § 112, ¶ 6 does not govern that limitation.

Id., 172 F.3d at 849-50, 50 USPQ2d at 1234. Since Judge Rader was writing for himself, his concurring opinion is not binding. Yet, the opinion is well-reasoned and persuasive. Accordingly, this Court will follow the method of analysis used by Judge Rader. *See CIVIX-DDI, LLC v. Microsoft Corp.*, 84 F. Supp.2d 1132, 1149 (D. Colo. 2000) (citing Judge Rader's opinion).

V. Particular Limitations Which Are Allegedly Step Plus Function Limitations

The Defendant asserts that three limitations are step plus function limitations. The Court considers each separately.

A. First Contested Limitation

For the '068 patent and the '711 patent,[1] Claim 1 claims

> the method comprising the steps of:

[1] The '068 patent uses the term "dial." The '711 patent uses the term "knob." There is no meaningful difference between dial and knob in determining whether this limitation is a step plus function limitation. For simplicity, the decision will refer to only the '068 patent.

> holding the lever in a position where the protrusion cannot contact the surface of the cam wheel and in such manner that the lever and the dial [knob] are operably disconnected and the lever will not move in response to rotation of the dial [knob].

‘068 Patent, Col. 8, lines 23-29 (paragraphing in original).

The Defendant argues that this limitation is written in step plus function language. The Defendant contends that “holding” is not an act or not a meaningful act. The Defendant argues that this limitation describes a function: “in such a manner that the lever and the dial [knob] are operably disconnected and the lever will not move in response to rotation of the dial [knob].”

In contrast, the Plaintiff argues that “holding” is an act. The Plaintiff maintains that although the passage quoted above limits this element, this limitation does not make the element a step plus function limitation.

The Court rules that “holding” is an act. When compared to how levers in prior technology acted, “holding” is doing something.

“Holding” the lever so that it does not touch the tumbler wheels must be contrasted with the earlier technology. In describing the related art, the patent states that “there is a need for a combination lock which prevents engagement of the fence lever with the tumbler wheels or the cam wheel until such time as the correct combination has been dialed into the lock mechanism.” ‘068 Patent, Col. 1, lines 63-67. In earlier technology, the lever moved with each rotation of the tumbler wheels and cam wheel. This movement was a problem because the movement lessened the security of the lock.

The ‘068 patent corrects this problem. In a situation where movement or action is expected, not-moving or non-acting is itself an action.[2] Here, the act (or how the function is accomplished) is the holding still without movement.

A person with ordinary skill in the art would understand that “holding” the lever means that the lever does not move. Accordingly, since “holding” is an act, and since a limitation with an act cannot be a step plus function limitation, this limitation is not a step plus function limitation.

In addition, this claim element is introduced by the phrase “step[] of.” Judge Rader recognizes a presumption that this phrasing means that the element is not step plus function. The Defendant has not presented a persuasive argument to deviate from this presumption.

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[2] A comparison could be the color of paint. White paint, when used on white paper, does not change the color. However, when white paint is used on black paper, the white paint changes the color.

B. Second Contested Limitation

Claim 1 of the ‘068 patent claims

> the method comprising the steps of:
> ***
> > operably connecting the lever and the dial, while maintaining the lever in a position where the provision cannot contact the surface of the cam wheel in response to a determination that the predetermined combination has been input;[3]

‘068 Patent, Col. 8, lines 23, 32-36 (paragraphing in original).

The Defendant again argues that “connecting” is not an act. The Defendant argues that the claim is not clear as to what particular parts are connected.

The Court holds that “connecting” is an act. Before the proper combination has been entered, the lever and the dial are not linked. Although the lever is joined to other parts and the dial is joined to still more parts, none of these intermediate parts touch each other. A gap separates the sequence of parts that includes the lever from the sequence of parts that includes the dial.

This gap disappears when the proper combination has been entered. The detent raises up through the solenoid housing and comes into contact with the cam wheel boss. This contact between the detent and the cam wheel boss completes the series of parts so that, through intermediate parts, the lever and dial are linked.

A person skilled in the art would understand that the machinery in the lock changes. The lever was separate from the dial. Then, the lever is linked to the dial. This change is an act, encapsulated in the phrase “operably connecting.”

The Defendant is correct when it claims that the patent does not spell out the connections between the lever and the dial. This much precision, however, is not required. To avoid being a step plus function limitation, the limitation must include an act. Some words for “acts” are broad terms, such as “traveling.” Other words for “acts” are more narrow, such as “hiking” or “biking.” Simply because “traveling” includes the more specific concepts “hiking” and “biking,” does not mean that “traveling” is not an act. Likewise, “connecting” remains an act, even though the connection can be achieved using different methods.

Accordingly, because “operably connecting” is an act and Section 112, paragraph 6, is implicated only where there is no act, this limitation is not a step plus function limitation.

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[3] “Provision” is clearly a typographical error. The correct word is “protrusion.”

C. Third Contested Limitation

Claim 1 of the '068 patent[4] claims

> the method comprising the steps of:
> ***
> transmitting a force applied to the dial to the lever after the lever and the dial have been operably connected to drive the lever to a position where the protrusion can contact the surface of the cam wheel in such a manner that the lever will be pulled by the cam wheel during rotation of the cam wheel.

'068 Patent, Col. 8, lines 23, 37-42 (paragraphing in original).

The Court holds that "transmitting" is not an act. A word describes an "act" when it explains "*how* the function is accomplished." *Seal-Flex*, 172 F.3d at 850, 50 USPQ2d at 1234 (Rader, J., concurring). The word "transmitting" without more does not explain how the force is transmitted. "Transmitting" makes sense only when considered in context of *what* the function accomplishes, which is "to drive the lever . . . during rotation of the cam wheel."

This limitation sets forth a function, but does not set forth an act. Therefore, it is a step plus function limitation. *See O.I Corp.*, 115 F.3d at 1582, 42 USPQ2d at 1781. Pursuant to Section 112, ¶ 6, this limitation is limited to those acts described in the specification. The specification reveals: that rotating the knob (or dial) turns the cam wheel until a portion of the cam wheel contacts a linking part (the detent) and pushes the linking part that, in turn, releases a blocking part (the cantilever arm) that frees the lever nose to come into contact with the cam wheel notch. '068 Patent, Col. 7, lines 24-52.

VI. Elements Requiring Definition

The parties dispute the meaning of three terms: "to drive," "dial," and "forming a rigid connection." These are discussed below:

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[4] Claim 1 of the '711 patent has very similar language. It claims:

> transmitting a force applied to the knob to the lever through the rigid connection after the lever and the knob have been operably connected to drive the lever to a position where the protrusion can contact the surface of the cam wheel in such a manner that the lever will be pulled by the cam wheel during rotation of the cam wheel.

'711 Patent, Col. 8, lines 34-40.

A. To Drive[5]

The Plaintiff contends that "to drive" is a general term that encompasses both pushing and pulling. For the Plaintiff, "to drive" is synonymous with either "to push" or "to pull." The Defendant argues that "to drive" means exclusively "to push," not "to pull." After examining the specification, the prosecution history and the extrinsic evidence, the Court holds that "to drive" means "to push."

The plain language of the claim does not resolve this question. As used in Claim 1, "drive" could mean either "push" or "pull." Since analyzing the plain language is not sufficient, the Court will examine the other evidence, beginning with the specification.

The specification equates "to drive" with "to push." When the proper combination has been entered, all parts of the lock are linked. The critical point is the junction between the cam mshaft wheel, which has a "boss," and the solenoid housing, which has a "detent." The specification states that "[t]he solenoid cam surface includes a small sloped protrusion or boss **92** . . . for engaging and pushing an extended detent in the solenoid housing **62** upon rotation of the cam wheel." Col. 5, lines 49-54. Correspondingly, "[t]he solenoid housing **62** is a rigid body or element, . . . for positively operating, driving or moving the lever from its disengaged position to a position for engaging the nose part **48**." Col. 5, lines 59-63.

The cam surface and the solenoid housing operate together. The cam surface "push[es]" the solenoid housing and the solenoid housing "driv[es]" the lever. This operation flows in one direction. Therefore, there is a clear, if implicit, equalization between "to drive" and "to push" in the specification.

The prosecution history of the parent patent is relevant to this claim construction proceeding. The parties submitted the prosecution history for the '656 patent and agreed that the prosecution history for the '656 patent was intrinsic evidence to be used in construing the '068 patent and the '711 patent. *See Elkay Manufacturing Co. v. Ebco Manufacturing Co.*, 192 F.3d 973, 983, 52 U.S.P.Q.2d 1109, 1114 (Fed. Cir. 1999) (stating "When multiple patents derive from the same initial application, the prosecution history regarding a claim limitation in any patent that has issued applies with equal force to subsequently issued patents that contain the same claim limitation. *See Jonsson v. The Stanley Works*, 903 F.2d 812, 817-818, 14 USPQ2d 1863, 1868-69 (Fed. Cir. 1990).")

The prosecution history in the '656 patent equates "to drive" with "to push." While prosecuting the application that eventually was issued as the '656 patent, the applicants submitted a "Proposed Amendment After Final Rejection Dated April 16, 1993" on August 20, 1993. In this filing, the applicants distinguished the operation of the invention from the cited prior art:

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[5] The term "to drive" appears as part of the fourth step in Claim 1 of both the '068 patent and the '711 patent. The appropriate portion of the '068 patent is quoted in Section V.C., above.

> Consider briefly Applicant's invention. One aspect of Applicant's invention is directed to a combination lock having improved tamper resistance. The present invention also provides more predictable operation of the lock by *positively engaging* the fence lever with the cam wheel when the nose part on the fence lever and the slot in the cam wheel are properly aligned. The tamper resistance and improved operational features of the lock in one aspect of the invention are provided, in part, by either (1) holding the lever out of engagement with the cam wheel, (2) *providing a positive driving mechanism for pushing the lever into engagement with the cam wheel*, and/or (3) providing *a means by which the cam wheel can push a link mechanism such as a shaft or rod to push the lever into engagement with the cam wheel* when a portion of the cam wheel is properly aligned with a portion on the shaft so as to allow the cam to push the shaft after entry of a proper combination.

Prosecution History of United States Patent No. 5,307,656, pages 170-71, submitted as PX 6 (emphasis added).

This portion of the prosecution history shows that the applicants thought of the "driving" force as a "pushing."

Examining the intrinsic evidence, including the specification and the prosecution history, is usually sufficient to construe the claims. *Vitronics*, 90 F.3d at 1582, 39 USPQ2d at 1577. The parties, however, also submitted extrinsic evidence in the form of dictionary definitions.

The dictionary definition also supports the Court's holding that "to drive" means "to push." The Plaintiff, itself, relied on a definition found in *The American Heritage Dictionary of the English Language*, (3d ed. 1996). This dictionary stated that "drive" means:

> 1. To push, propel, or press onward forcibly; urge forward: drove the horses into the corral.
> 2. To repulse forcefully; put to flight: drove the attackers away; drove out any thought of failure. To guide, control, or direct (a vehicle).

The American Heritage Dictionary of the English Language, 563-64 (3d ed. 1996), submitted as PX 9. These definitions indicate that the force moves away from the actor. The dictionary used by the Defendant, *The American College Dictionary*, agrees. *See The American College Dictionary* 368 (1970), submitted as DXM 5.

In sum, the Court holds that "to drive" means "to push."[6]

B. Dial ('068 patent, Claim 1)

The Court must decide whether the term "dial" encompasses only the part of a combination lock that the user turns or must that part also have divisions or gradients or numbers[7] that the user can read. The Court holds that the dial must include divisions.

The plain language of the claim does not resolve this question. As used in Claim 1, "dial" would make sense regardless of whether the dial has divisions. Since analyzing the plain language is not sufficient, the Court will examine the other evidence, beginning with the specification.

Unquestionably, the specification calls for the dial to rotate the cam wheel. The Plaintiff identifies many portions of the specification that describe the dial as accomplishing this purpose. *See, e.g.*, Col. 1, lines 52-54 (stating "Generally these locks have employed a cam mechanism operated off of dial rotation to drive its fence lever toward the wheel once on each rotation of the dial."); Col. 5, line 38 (stating "such that upon rotation of the cam wheel by the dial.") The Defendant does not dispute that the dial turns the cam wheel.

The question is whether the dial also must include divisions. The Defendant cites those passages of the specification where a dial has divisions. For example, the section on related art begins: "[o]ne such class of lock is the electronic dial combination lock which uses a dial *having divisions* to enter a combination code to gain entrance to the secured area." Col. 1, lines 21-24 (emphasis added). In describing the preferred embodiment of the invention, the dial is described as having a "well-known configuration." Col. 5, line 8. This same passage uses both "dial" and "knob" and the use of both terms suggests a difference between the two terms: "A dial of well-known configuration is mounted to the external end of the shaft and includes a knurled knob **78** for both rotating and axially moving the dial." '068 Patent, Col. 5, lines 7-10. In addition to how "dial" is described in words, Figure 2 shows the dial as having divisions or gradients.

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[6] In part of its submissions on claim construction, the Plaintiff alluded to an argument that "to push" is the same as "to pull." The Court refused to consider this argument because the argument would require examining the accused device. Claim construction should proceed without reference to the accused device. *Union Oil Co. of California v. Atlantic Richfield Co.*, 208 F.3d 989, 995, 54 USPQ2d 1227, 1231 (Fed. Cir. 2000)

Because the question was not presented to this Court squarely, the Court does not intend to imply any statement whether "to push" is the equivalent of "to pull."

[7] The parties use the terms "divisions," "gradients," and "numbers" interchangeably. For convenience, the Court will simply use "divisions" without implying that "divisions" means something and "gradients" and/or "numbers" mean something else.

The Court holds that a dial must have divisions on it. The parts of the specification on which the Defendant relies define "dial." How dial is used elsewhere in the patent, including those portions cited by the Plaintiff, does not contradict this definition. If the Court were to rule that a dial does not require divisions, then the Court would be ignoring the parts of the specification where a dial is defined as having divisions. The Court should avoid construing the patent in a way that excludes the preferred embodiment. *Burke, Inc. v. Bruno Independent Living Aids, Inc.*, 183 F.3d 1334, 1341, 51 USPQ 1295, 1300 (Fed. Cir. 1999) (reversing trial court's construction for excluding preferred embodiment); *Hoechst Celanese Corp. v. BP Chemicals Ltd.*, 78 F.3d 1575, 1581, 38 USPQ2d 1126, 1130 (Fed. Cir. 1996).

A dictionary definition, submitted as extrinsic evidence, confirms the Court's construction. *The American College Dictionary* defines "dial" as "a plate or disk with graduations or figures, as for the indication of pressure, number of revolutions, etc., as by the movements of a pointer." *The American College Dictionary* 333 (1970), submitted as DMX 1.

The Plaintiff attempts to contradict this extrinsic evidence, but this attempt is unsuccessful. First, any analysis of the extrinsic evidence is subordinate to the intrinsic evidence. The Plaintiff does not explain how the specification, a form of intrinsic evidence, supports its argument that a dial does not have divisions. Second, the Plaintiff relies on a dictionary that defines dial as "[a] movable control knob or other device on a radio or television receiver used to change the frequency." *The American Heritage Dictionary of the English Language*, 515 (3d ed. 1996), submitted as PX 9. The Court is familiar with combination locks and common combination locks have dials that have divisions. There is no reason to resort to how other equipment such as radios or televisions use "dial," when a more relevant type of equipment demonstrates what "dial" means. "Claim terms receive their ordinary and customary meaning unless the patentee assigns a special meaning." *Cortland Line Co. v. Orvis Co.*, 203 F.3d 1351, 1356, 53 USPQ2d 1734, 1737 (Fed. Cir. 2000), citing *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582, 39 USPQ2d 1573, 1576 (Fed. Cir. 1996).

In sum, the Court holds that "dial" must have divisions.

C. *"forming a rigid connection"*

Claim 1 of the '711 patent states, in part:

> forming a rigid connection between the lever and the knob with at least one substantially rigid member while maintaining the lever in a position where the protrusion cannot contact the surface of the cam wheel, in response to a receipt of an unlock signal.

Col. 8, lines 29-33.

The parties do not articulate clearly the difference in their claim constructions.[8] The Court understands that the parties dispute what "rigid connection" means, especially in the context where the same limitation also uses the phrase "substantially rigid connection."

Relying on the phrase "rigid connection," the Defendant asserts that *all* parts of the connection are rigid. According to the Defendant, the preferred embodiment displays a rigid connection because although the pin in the cantilever arm (**54**) is spring biased vertically, the connection between the pin and the solenoid housing across which it rides horizontally is maintained throughout. The Defendant uses the pin as an example of a "substantially rigid member" in a "rigid connection."

The Plaintiff's position is difficult to grasp but begins with a straightforward explanation. To the Plaintiff, this limitation is an improvement over the prior art because earlier locks used springs. *See, e.g.*, PX 14, 16. Springs are flexible. The patent improves the prior art because it replaced springs with parts that permit a rigid connection.

Given this understanding of the prior art and the claims of the patent, it is surprising that the Plaintiff asserts that not all connections need to be "rigid." Transcript, page 129.[9] According to the Plaintiff, the preferred embodiment shows two examples of a connection that includes some movement. These are the connection between the pin and the solenoid housing and the connection between the detent and the cam wheel boss.

The Court has already discussed the connection between the pin and the solenoid housing. Although the pin moves vertically, the effect of this movement is to keep a constant connection with the solenoid housing. Thus, the pin's vertical movement does not affect the rigidity of the connection between the lever and the knob.

At all meaningful times, the connection between the detent and the cam wheel boss is also rigid. When the detent pops out of the solenoid housing, the cam wheel boss catches the detent and moves it. This movement causes the entire solenoid housing to slide. The solenoid housing, in turn, forces the pin in the cantilever arm to move. The pivoting of the cantilever arm causes a corresponding vertical movement in the lever until the lever's nose eventually enters the notch in the cam wheel. Throughout these steps, the cam wheel boss touches the detent.

After the nose of the lever fills the notch in the cam wheel, additional turning of the cam wheel moves the lever directly. (This horizontal movement of the lever draws open the bolt that actually locks the object.) In other words, any connection between the cam wheel boss and the detent would be superfluous.

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[8] The significance of the proposed constructions may be more apparent once the Court hears evidence about how the accused device operates.

[9] The Court relies on the presentations made at oral argument because the briefs submitted in advance of the claim construction hearing were not helpful on this particular issue.

In operation, the continual horizontal movement of the solenoid housing causes the detent to slip past the cam wheel notch. Eventually, the connection between the detent and the cam wheel boss is broken. The Plaintiff focuses on this break as an example of when the connection between the parts was not "rigid."

If the Plaintiff is correct that the connection between the detent and cam wheel boss is not rigid, then it would seem that the Patent and Trademark Office erred in issuing the patent because the claim states that there is a "rigid connection." Such a construction, of course, is strongly disfavored. *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 USPQ 929, 932 (Fed. Cir. 1984) (applying maxim to construe claim to preserve validity).

Instead, the Court views the connection between the detent and the cam wheel boss as rigid at all meaningful times. This perspective makes sense and comports with the patent's claims and disclosures. Accordingly, the Court construes Claim 1 to require a rigid connection between all parts in the chain of parts between the lever and the knob during the unlocking procedure.

VII. Miscellaneous Issue

The Defendant requests that the Court construe a limitation found in Claim 1 of the '068 patent. This limitation states: "electronically determining whether an input combination corresponds to a predetermined combination." '068 Patent, Col. 8, lines 30-31. The Defendant focuses on the word "electronically," and seeks a construction of this word for purposes of presenting an argument about the patent's invalidity.[10]

The Defendant proposes a narrow construction for "electronically." "Electronically," to the Defendant, means that there is "some type of logical circuitry that determines what number is being input and whether it corresponds to a predetermined combination." Transcript of Oral Argument, p. 134. Without specifying exactly what type of logical circuitry could be used, the Defendant suggests that transistors would perform this operation. An electrical switch, however, would not meet the Defendant's definition because an electrical switch does not make a logical comparison. Defendant's Brief on Claim Construction, p. 38; Transcript of Oral Argument, p. 135.

In contrast, the Plaintiff contends that "electronically" is not so limited. The Plaintiff argues that "electronically" is fulfilled by "anything electrical which causes the combination input." Transcript of Oral Argument, p. 133. For example, an electrical switch is appropriate and would meet the Plaintiff's definition of "electronically."

The Court holds that "electronically" requires logical circuitry that compares an inputted combination to the preselected combination. The plain language of the limitation and the specification supports the Court's construction.

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[10] The Defendant does not flesh out its potential argument about invalidity. According to the Plaintiff, the Defendant believes that there is an issue about reduction to practice.

First, the limitation states "electronically determining." The electronic component must "determine" whether the correct combination has been entered. The Plaintiff fails to explain how an electric switch could "determine" the correct combination. It appears that the most an electric switch can do is to input the combination. By attempting to force the limitation to include an electric switch, the Plaintiff tortures the plain wording of the limitation. In actuality, the Plaintiff's proposed definition would rewrite the limitation so that it read "electronically *inputting* the combination." However, the limitation does not say "inputting;" it says "determining." The plain language of the claim, therefore, would exclude an electric switch.

The specification supports this construction. The specification shows:

> A fish paper gasket **66** overlays the metal retaining plate and is coextensive with the printed circuit board **68** so that an appropriate combination code can be entered and received by the printed circuit board and processed in a manner such as that described in U.S. Pat. No. 4,745,784.

'068 Patent, Col. 4, lines 55-60. In the specification, the '784 patent, states:

> Mounting board **70** additionally provides a convenient vehicle for mounting and interconnecting with pressure-sensitive switches **72** of circuit means **74** within housing **12** for sensing the making of the electrical connections at pressure-sensitive switches **72** and for detecting when a given subset of the connections has been made in a predetermined, sequential order corresponding to the code, or combination, of the apparatus, and for generating an electrical stimulus, or signal, such as a voltage, upon the detection thereof.

'784 Patent, Col. 4, line 61 - Col. 5, line 2. In the '784 patent, the mechanism "detect[s]" whether the combination code has been entered. In this context, "detects" requires a comparison. Since the '068 patent expressly refers to the '784 patent and since the '784 patent has a part for electronically comparing the inputted combination, the '068 patent also has this requirement.

In sum, the plain language of the limitation and the specification support the Defendant's construction that the patent requires logical circuitry.

VIII. Conclusion

This decision sets out the Court's construction for the disputed terms.

Masco and the United States are instructed to file separate status reports suggesting how the case should proceed from this point. (The United States should consult the Third-Party Defendants.) The United States should address whether any challenges to validity could be resolved without a trial. Although Masco and the United States should file separate status reports, they should confer to see whether an agreement can be reached.

After receiving the status reports, the Court will hold a status conference.

EDWARD J. DAMICH
Judge